

SOLID RADIOACTIVE WASTE PROCESS CONTROL PROGRAM

DAVIS-BESSE NUCLEAR POWER STATION

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## DAVIS-BESSE NUCLEAR POWER STATION

### Solid Radioactive Waste Process Control Program

#### I. PURPOSE

The processing of radioactive waste for disposal at a licensed radioactive waste burial site requires that the waste be appropriately analyzed, processed and packaged, representing a final waste form that is acceptable for transportation to and burial at a licensed radioactive waste disposal site. The purpose of this Process Control Program is to document the radioactive waste processing methods and the quality control steps that are taken at Davis-Besse to verify compliance with applicable regulatory requirements and, in particular, to assure an acceptable waste product meeting the applicable waste stability characteristics of 10 CFR 61.56.

This Process Control Program covers all major waste processing streams at Davis-Besse and the resulting final waste products, including:

- Compressible and non-compressible trash;
- Spent aqueous system filter cartridges;
- Spent resins; and
- Use of contractor for waste processing.

#### II. REGULATORY OVERVIEW

All waste processing, packaging and shipping are conducted in accordance with approved procedures to assure compliance with applicable federal, state and burial site requirements. Waste processed for disposal is evaluated for compliance with:

1. The waste classification requirements of 10 CFR 61.55.
2. The waste characteristic requirements of 10 CFR 61.56.
3. The manifest reporting requirements of 10 CFR 20.311.

Packaging of waste is in containers meeting DOT specifications and is appropriate for the applicable waste class. Shipments are conducted in accordance with the requirements of 49 CFR 172-177 and 10 CFR 71.

All waste processing is performed in a manner consistent with the principles of ALARA. The procedures that have been developed to cover waste processing operations address appropriate radiation safety measures such as job preplanning (REP), radiation source shielding, and job prerequisites and material requirements so as to minimize stay times.

### III. SOLID RADWASTE PROCESSING AND PACKAGING

Prior to the placing of any radioactive material in a container for shipment off-site, a visual inspection of the container's general condition and integrity is conducted. Specific items leading to potential container degradation that are examined and could result in rejection for use as a radwaste disposal container include:

- Punctures
- Corrosion
- Cracked, separated, incomplete, or otherwise defective seams and welds
- Bent, dented, cut, or degraded gaskets and/or sealing surfaces

Also, specific criteria prohibit the inclusion of liquid waste (e.g., wet decontamination mop heads, free liquids, and plastic wastes containing liquids) unless special provisions have been made for the removal of the liquids (e.g., for dewatering spent resins).

#### Compressible and Non-Compressible Waste

Miscellaneous compressible and non-compressible wastes are routinely collected throughout the radiologically controlled areas of the plant for the purposes of general housekeeping and radiological control.

Prior to filling a drum or a box with waste, the container is appropriately labeled, RADIOACTIVE - LSA. The loading of compressible and non-compressible waste is conducted in a manner consistent with the philosophy of volume reduction and minimization of void spacing. After completion of waste compaction and/or container loading, each container is sealed, weighed and placed in radwaste storage, pending shipment to a licensed waste disposal site.

#### Liquid System Cartridge Filters

Cartridge filters can be a high radiation and/or contamination hazard. All spent filter removals are performed under health physics surveillance. Filters are placed in shielded storage to allow for radioactive material decay prior to placing in an approved, appropriate shipping container (e.g., high integrity container or HIC).

#### Spent Resin - Primary System

Spent resins from the primary clean-up system are transferred from the Spent Resin Storage Tank to an appropriate disposable container in accordance with approved plant procedures. Normally, transfer is to an HIC; however, a carbon steel container may be used provided radioactive material levels meet the criteria for Class A waste per the requirements of 10 CFR 61.55. After transfer to a disposable container, the container is dewatered

in accordance with vendor-approved procedures that have been specifically developed for the dewatering of resins for the applicable vendor-supplied container. The specifics of the dewatering process must adequately demonstrate the removal of essentially all free standing water (i.e., meeting the free standing liquids requirements of 10 CFR 61.56).

Additional administrative controls taken to assure the proper dewatering of resin utilizing vendor-supplied procedures, are addressed in Section IV.

#### Spent Resin - Miscellaneous Waste Monitor Tank Influent Processing

The processing of liquid radwaste normally from the miscellaneous waste drain tank or detergent waste drain tank (dirty, aerated liquids) is performed by a contractor-supplied filtration/demineralization system. Refer to Section IV for the administrative and operational controls that are taken to assure the generation of an acceptable waste product.

#### Spent Resin - Condensate Polishing Demineralizer Holdup Tanks

The processing of resin slurries from the condensate polishing demineralizer holdup tanks is performed by a contractor-supplied system. Refer to Section IV below for the administrative and operational controls that are taken to ensure the generation of an acceptable waste product.

### IV. USE OF CONTRACTOR FOR WASTE PROCESSING

Contractor-supplied services may be used at Davis-Besse for the processing of radioactive waste, including miscellaneous radwaste liquids, oil waste, and other types of waste resulting from both routine and non-routine operations. For the operation of such process systems, it may be desirable to use process control measures and procedures developed by the contractor specifically for the system. Therefore, previously addressed process control measures for a particular waste stream may, as appropriate, be superseded by contractor-supplied measures. The following discussion addresses the administrative controls that are imposed to assure that contractor-supplied systems and services for processing radioactive waste for disposal at a burial site are compatible with plant operations, procedures and regulatory requirements.

Prior to the use of any contractor for the processing of waste at Davis-Besse, a management review of the contractor's process controls and operating procedures is performed for the purpose of assuring safe operation in accordance with plant procedures and applicable regulatory requirements. For the processing of waste that is intended to be shipped for disposal at a licensed radioactive waste burial site, additional precautions are taken to assure a final waste product that meets the appropriate waste characteristic requirements for solidification or dewatering. In particular, the following items, as applicable, are to be documented by the contractor (or

Davis-Besse manuals or procedures) prior to utilization for solid waste processing:

- a general description of the solidification process, including type of solidification agent, major process equipment and interface with plant equipment, type of wastes that can be processed, and operating parameters
- a process control program that provides for the verification of the generation of a suitable waste product, including items such as representative sampling, laboratory tests to establish waste-to-process medium ratios, and criteria for evaluating acceptability of laboratory tests
- specifically approved procedures for the operation of the process equipment that will assure operation within the bounds as determined by the process control program
- appropriate acceptance criteria for evaluating the acceptability of the final waste product.